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Oil slick on Lebanese shores

Report of the Secretary-General**

Summary

The present report, submitted in response to the request contained in General Assembly resolution 66/192, provides an update on the progress of the implementation of Assembly resolutions 61/194, 62/188, 63/211, 64/195, 65/147 and 66/192 related to the oil slick on Lebanese shores that resulted from the bombing of the Jiyeh power plant, a civilian utility serving the general public in Lebanon, in August 2006. It complements the information presented in previous reports of the Secretary-General on the subject (A/62/343, A/63/225, A/64/259, A/65/278 and A/66/297).

* A/67/150.

** The submission of the present report was delayed owing to the extensive consultations on the legal issues covered in the report.

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I. Introduction

1. The present report was prepared by the United Nations Environment Programme (UNEP) and the United Nations Development Programme (UNDP), building on the work undertaken by an inter-agency team,[1] established for the previous reports. It is submitted pursuant to paragraph 10 of General Assembly resolution 66/192, in which the Assembly requested the Secretary-General to submit a report on the implementation of the resolution at its sixty-seventh session under the item entitled "Sustainable development".

II. A brief overview of recent developments

2. The report provides a brief summary of the information presented in the previous reports of the Secretary-General, together with updates on the relevant issues. It provides also a further legal analysis by UNEP to explore the value of the experience of the United Nations Compensation Commission in addressing pertinent issues as called for in paragraph 6 of General Assembly resolution 66/192.

3. The marine oil spill resulted in the release of about 15,000 tons of fuel oil into the Mediterranean Sea, leading to the contamination of about 150 km of coastline in Lebanon and the Syrian Arab Republic, causing adverse impacts to the environment and the achievement of sustainable development as highlighted in General Assembly resolutions 61/194, 62/188, 63/211, 64/195, 65/147 and 66/192.

4. Several United Nations agencies and other international regional and national entities, including the International Union for Conservation of Nature, the World Bank and the National Council for Scientific Research of Lebanon were involved in assessing the implications of the oil spill for human health, biodiversity, fisheries and tourism in Lebanon. A summary of their combined findings was presented to the General Assembly in the previous reports of the Secretary-General. No further studies have been conducted during the past year.

5. In paragraph 4 of its resolution 66/192, the General Assembly reiterated its request to the Government of Israel to assume responsibility for prompt and adequate compensation to the Government of Lebanon and other countries directly affected by the oil slick, such as the Syrian Arab Republic whose shores have been partially polluted, for the costs of repairing the environmental damage caused by the destruction, including the restoration of the marine environment, in particular in the light of the conclusion contained in the report of the Secretary-General that there remains grave concern at the lack of implementation of the relevant provisions of the resolutions of the General Assembly on the subject vis-à-vis reparations and compensation to the Government and people of Lebanon and the Syrian Arab Republic affected by the oil spill. This echoes and emphasizes previous Assembly requests. To date this provision of the Assembly resolution has not been implemented.

6. In paragraph 5 of its resolution 66/192, the General Assembly requested the Secretary-General to give further consideration to the option of securing the relevant

[1] The inter-agency team comprised the United Nations Environment Programme, the United Nations Development Programme, the Food and Agriculture Organization of the United Nations, the World Health Organization and the World Bank. The International Union for Conservation of Nature was also a key partner in this work.

compensation from the Government of Israel. In 2007 UNDP reviewed the many conventions that relate to oil pollution at sea and that many Eastern Mediterranean countries have signed, but found that all of them are inapplicable during armed hostilities. Further, the agreements that relate to oil-spill compensation relate only to oil spills from tanker vessels at sea and not to land-based incidents. UNDP noted that the United Nations Compensation Commission offers the only precedent for a major oil-spill compensation regime for spills arising from armed hostilities. However, as stated in my previous report, the mandate of the Commission is limited to processing claims and paying compensation for losses and damage suffered as a direct result of the unlawful invasion and occupation of Kuwait by Iraq. It, therefore, does not have a potential role to play in securing compensation from Israel for the costs of repairing the environmental damage that is the subject of the present report. Nevertheless, it was thought that the Commission's experience in handling claims for compensation for environmental damage might be of some relevance to a case such as the present oil slick.

7. In paragraph 8 of its resolution 66/192, the General Assembly welcomed the agreement of the Lebanon Recovery Fund to host the Eastern Mediterranean Oil Spill Restoration Trust Fund, and in paragraph 9 noted that the Secretary-General had previously urged Member States, intergovernmental organizations and the private sector to continue their support for Lebanon in this matter, and reiterated its invitation to States and the international donor community to make voluntary financial contributions to that Trust Fund. In this regard, the Assembly requested the Secretary-General to mobilize international technical and financial assistance in order to ensure that the Trust Fund has sufficient and adequate resources, since Lebanon is still engaged in the treatment of wastes and monitoring of recovery. To date no contributions have been made to the Eastern Mediterranean Oil Spill Restoration Trust Fund hosted by the Lebanon Recovery Fund.

III. Experiences of the United Nations Compensation Commission in handling environmental damage which may be relevant to a case such as the present oil slick

8. In paragraph 6 of its resolution 66/192, the General Assembly requested the Secretary-General to explore the value of the experience of the United Nations Compensation Commission in terms of defining environmental damage in a case such as the present oil slick, in measuring and quantifying the damage sustained and in determining the amount of compensation payable in respect of it.

9. The Security Council, in paragraph 16 of its resolution 687 (1991) of 3 April 1991, affirmed that Iraq was liable under international law for any direct loss, damage — including environmental damage and the depletion of natural resources — or injury to foreign Governments, nationals and corporations as a result of its unlawful invasion and occupation of Kuwait. By its resolution 692 (1991) of 20 May 1991, the Security Council established the United Nations Compensation Fund to pay compensation for claims that fell within the scope of paragraph 16 of its resolution 687 (1991) and established the United Nations Compensation Commission to process such claims and order the payment of compensation from the Fund for such losses.

10. The Governing Council of the Commission established panels of commissioners to determine the admissibility of claims, verify their validity, evaluate the loss for

which compensation was being sought and calculate any allowable compensation. The panels then submitted their recommendations to the Governing Council, which made the final determination whether a claim should be met and, if so, in what amount. Pursuant to article 31 of the Rules for Claims Procedure adopted by the Governing Council, commissioners, in considering claims, were to apply Security Council resolution 687 (1991) and other relevant Security Council resolutions, the criteria established by the Governing Council for particular categories of claims, and any pertinent decisions of the Governing Council. In addition, where necessary, commissioners were to apply other relevant rules of international law.

11. In December 1998, the Governing Council appointed a Panel of Commissioners to review claims for direct losses relating to environmental damage and depletion of natural resources resulting from Iraq s invasion and occupation of Kuwait (F4 claims).

A. Defining environmental damage

12. Neither the Governing Council nor the F4 Panel expressly defined the meaning of "environmental damage" as such. Rather, what constituted environmental damage was clarified in the context of specific claims that they processed.

13. Regarding the scope of environmental damage covered in its work, the F4 Panel stated that any loss of or damage to natural resources that could be demonstrated to have resulted directly from Iraq's invasion and occupation of Kuwait must be deemed to be encompassed in the concept of "environmental damage and the depletion of natural resources" within the meaning of Security Council resolution 687 (1991).

14. The Panel did not consider that there was anything in the language or context of Security Council resolution 687 (1991) that mandated or suggested an interpretation that would restrict the term "environmental damage" to damage to natural resources which had commercial value. The Panel, therefore, concluded that a loss due to depletion of or damage to natural resources, including resources that may not have a commercial value, was, in principle, compensable in accordance with Security Council resolution 687 (1991) if such loss was a direct result of Iraq's invasion and occupation of Kuwait.

B. Measuring and quantifying the damage sustained

15. Decision 7 of the Governing Council details the type of environmental losses that can be submitted as claims. Paragraph 35 of the decision provides that "direct environmental damage and depletion of natural resources" includes losses or expenses resulting from:

(a) Abatement and prevention of environmental damage, including expenses directly relating to fighting oil fires and stemming the flow of oil in coastal and international waters;

(b) Reasonable measures already taken to clean and restore the environment or future measures which can be documented as reasonably necessary to clean and restore the environment;

(c) Reasonable monitoring and assessment of the environmental damage for the purposes of evaluating and abating the harm and restoring the environment;

(d) Reasonable monitoring of public health and performing medical screenings for the purposes of investigation and combating increased health risks as a result of the environmental damage;

(e) Depletion of or damage to natural resources.[2]

16. According to the list above, the Governing Council identified four categories of compensable losses or expenses caused by environmental damage, namely, (a) activities to monitor and assess the damage; (b) activities to abate and prevent environmental damage; (c) activities undertaken to clean and restore the environment; and (d) losses resulting from depletion of or damage to natural resources. The F4 Panel used the same categories to cluster the compensation claims, giving priority to claims relating to monitoring and assessment in its report on the first instalment of claims,[3] then addressing substantive environmental claims on prevention and restoration in its reports on the second, third and fourth instalments, and finally considering claims on the depletion of natural resources in its report on the fifth instalment.

17. Against that background, the F4 Panel considered a range of claims concerning environmental damage. An overview of those claims with respect to oil pollution, as highlighted in the reports of the Panel,[4] includes the following, which indicates the possible elements of such environmental damage:

(a) Compensation for measures to respond to environmental damage and human health risks from oil lakes formed by oil released from damaged wells in Kuwait; oil spills in the Persian Gulf caused by oil released from pipelines; offshore terminals and tankers; and pollutants released from oil well fires in Kuwait;

(b) Compensation for expenses resulting from cleaning and restoration measures taken or to be taken to remediate damage from oil released from damaged oil wells in Kuwait; pollutants released from oil well fires and firefighting activities in Kuwait; and oil spills into the Persian Gulf from pipelines, offshore terminals and tankers;

(c) Compensation for expenses resulting from measures already taken or to be taken to remediate damage caused inter alia by oil released from damaged oil wells in Kuwait; pollutants released from the oil well fires and firefighting activities in Kuwait; oil released from pipelines on to the land; oil-filled trenches; oil spills into the Persian Gulf from pipelines, offshore terminals and tankers; and the movement and presence of refugees who departed from Iraq and Kuwait;

(d) Compensation for damage to or depletion of natural resources resulting from, inter alia, pollutants from the oil well fires and damaged oil wells in Kuwait; oil spills into the Persian Gulf from pipelines, offshore terminals and tankers; influx of refugees into the territories of some of the claimants.

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[2] It should be noted, however, that in the opinion of the F4 Panel, the term "environmental damage" in paragraph 16 of Security Council resolution 687 (1991) was not limited to losses or expenses resulting from the activities and events listed in paragraph 35 of Governing Council decision 7, and it should rather be considered as providing guidance regarding the types of activities and events that can result in compensable losses or expenses.

[3] S/AC.26/2001/16.

[4] S/AC.26/2002/26, S/AC.26/2003/31, S/AC.26/2004/16, S/AC.26/2005/10.

C. Determining the amount of compensation payable for the damage sustained

18. In the review of claims by the Panel, compensation had to be determined on a case-by-case basis. Where a claimant presented evidence that, in the Panel's view, was sufficient to demonstrate the circumstances and amount of the claimed losses or expenses, compensation was recommended for the full compensable amount. Where the evidence presented demonstrated that compensable losses or expenses were incurred but the evidence did not enable the Panel to substantiate the full amount of the claimed losses or expenses, the Panel recommended a smaller amount. Where the information presented was not sufficient to demonstrate that any compensable losses or expenses were in fact incurred, the Panel recommended that no compensation be awarded.

19. Although compensation was determined on a case-by-case basis, the F4 Panel followed a standardized review process in processing claims for environmental damage. The review process included the following steps:

(a) Establishment of a causal link between the damage and Iraq's invasion and occupation of Kuwait;

(b) Assessment of the reasonableness of the measures already taken or future measures to respond to the damage;

(c) Identification of the activity under one of the categories under paragraph 35 of decision 7 of the Governing Council;

(d) Confirmation of evidentiary requirements;

(e) Request to the claimant and a third party, such as an ad hoc team of expert consultants, to submit additional information;

(f) Review of the cost estimate submitted by the claimant and adjustment of the claimed amounts in the light of the additional information received;

(g) Recommendation to the Governing Council on the amount of compensation.

20. In the context of that review process, specific criteria applied depending on the category of claims. Regarding claims for monitoring and assessment activities, environmental damage was not a prerequisite for the claim to be compensable. In the view of the Panel, in its report on the first instalment, the purpose of monitoring and assessment is to enable a claimant to develop evidence to establish whether environmental damage has occurred and to quantify the extent of the resulting loss (S/AC.26/2001/16, para. 29).

21. The Panel also concluded, in its report on the second instalment, with respect to measures taken to prevent environmental damage, that expenses resulting from assistance rendered to countries in the Persian Gulf region to respond to environmental damage, or threat of damage to the environment or public health, qualified for compensation pursuant to Security Council resolution 687 (1991) and Governing Council decision 7 (S/AC.26/2002/26, para. 34).

22. With respect to environmental restoration claims, in its report on the third instalment, the Panel considered that the appropriate objective of remediation was to restore the damaged environment or resource to the condition in which it would

have been if Iraq's invasion and occupation of Kuwait had not occurred. In the view of the Panel, such an approach was appropriate even where there was evidence that the environment was not in pristine condition prior to Iraq's invasion and occupation of Kuwait. The contribution of any pre-existing or subsequent causes of damage — where such causes can be identified — was considered, not in determining the restoration objective to be achieved by remediation, but in determining the proportion of the costs of remediation that could reasonably be attributed to Iraq's invasion and occupation of Kuwait (S/AC.26/2003/31, para. 47).

23. Specifically with respect to claims for depletion of or damage to natural resources, the Panel awarded compensation not only for depletion of natural resources with commercial value but also for "pure environmental damage". On this point, the Panel pointed out that a loss, even temporary, of natural resources that may not have had a commercial value was, in principle, compensable in accordance with Security Council resolution 687 (1991) if such loss was a direct result of Iraq's invasion and occupation of Kuwait. The Panel further elaborated that there was no justification for the contention that general international law precludes compensation for pure environmental damage. In particular, the Panel did not consider that the exclusion of compensation for pure environmental damage in some international conventions on civil liability and compensation was a valid basis for asserting that international law, in general, prohibited compensation for such damage in all cases, even where the damage resulted from an internationally wrongful act.

24. With respect to environmental damage caused by oil pollution, including damage to the marine and coastal environment caused by release of oil into the Gulf, the Panel recommended to award compensation for a number of claims, in a manner described above. The practice of the United Nations Compensation Commission in this regard could conceivably be of use in determining what is compensable and in what amount in respect of other cases of oil pollution of the sea from land-based sources where legal liability for such pollution is accepted or established.

D. Cases which may be relevant to the present oil slick case

25. Certain cases of claims reviewed by the F4 Panel may be relevant to a case such as the present oil slick, providing useful guidance in measuring and quantifying environmental damage and determining the amount of compensation. A summary of some of those cases is presented in the annex to the present report.

IV. Conclusions

26. The Secretary-General wishes to commend the ongoing efforts of the Government of Lebanon to address the impacts of the oil spill. There, however, remains grave concern at the lack of implementation of the relevant provisions of the resolutions of the General Assembly on this subject, vis-à-vis reparations and compensation to the Government and people of Lebanon and the Syrian Arab Republic affected by the oil spill.

27. The Secretary-General would like to once more commend the response of the international donor community to this matter. Nonetheless, given the particularity of the cause and the prevailing circumstances of the Lebanese oil spill case at the time

of the incident and beyond, the Secretary-General would urge Member States, international organizations, international and regional financial institutions, non-governmental organizations and the private sector to continue their support for Lebanon in this matter, particularly for rehabilitation activities on the Lebanese coast and in the broader recovery efforts. This international effort should be intensified, since Lebanon is still engaged in treatment of wastes and monitoring of recovery; countries and the international donor community are encouraged to make contributions to the Eastern Mediterranean Oil Spill Restoration Trust Fund as hosted by the Lebanon Recovery Fund.

Annex

Some cases of claims reviewed by the F4 Panel which may be relevant to a case such as the present oil slick on Lebanese shores

A. Claims by Kuwait concerning marine and coastal environmental damages

Measuring and quantifying the damage

1. Kuwait was awarded compensation in three claims for activities to monitor and assess marine and coastal environmental damage caused by oil pollution resulting from Iraq's invasion and occupation of Kuwait. These claims were reviewed in the report of the Panel on the first instalment of F4 claims, under numbers 5000378,[a] 5000397[b] and 5000398.[c]

2. In the first claim, for which Kuwait obtained compensation in the amount of US$ 37,546,888, the Panel found that the five-year monitoring programme proposed by Kuwait to identify and assess the long-term impacts on Kuwait's marine environment of the millions of barrels of oil released into the Persian Gulf qualified for compensation in accordance with paragraph 35 (c) of Governing Council decision 7.

3. In the second claim, Kuwait was awarded compensation of $18,077,770 for a monitoring programme to obtain information on the amount and type of oil pollution caused to its shoreline as a result of Iraq's invasion and occupation of Kuwait. The purpose of the programme was to provide the basis for the evaluation of treatment technologies for the "oiled shoreline".

4. In the third claim, the Panel recommended compensation in the amount of $8,237,792 for a project to study technologies to treat areas of Kuwait's shoreline that might have been contaminated by oil as a result of Iraq's invasion and occupation of Kuwait. The project consisted of a screening process to assess different technologies that might be effective in treating and restoring contaminated areas ("oiled shoreline").

Determining the amount of compensation

5. The findings of the above-mentioned monitoring and assessment activities contributed to determine the amount of compensation claimed by Kuwait in claim No. 5000259[d] on remediation of damage to marine and coastal resources, reviewed by the Panel in its report on the fourth instalment.

6. In this case, Kuwait sought compensation in the amount of $33,901,560 for expenses of future measures to remediate damage to its coastal environment resulting from Iraq's invasion and occupation of Kuwait. This amount represented a decrease compared to the compensation initially claimed, resulting from amendments

[a] S/AC.26/2001/16, paras. 411-416.
[b] Ibid., paras. 417-425.
[c] Ibid., paras. 426-433.
[d] S/AC.26/2004/16, paras. 158-191.

made by Kuwait on the basis of new information obtained from monitoring and assessment activities carried out as a result of the three claims referred to above.

7. Kuwait stated that its coastal environment was damaged by more than 12 million barrels of oil deliberately released into the Persian Gulf by Iraqi forces. Kuwait alleged that the oil spills in 1991 resulted in oil contamination along its coastline. On the basis of monitoring and assessment, Kuwait identified the following specific areas of contamination:

(a) A coastal oil deposit area;

(b) Coastal oil trenches comprising the mainland coastal oil trench and the Bubiyan Island coastal oil trench;

(c) Areas of coastal weathered oil layers;

(d) Residual oil contamination in certain areas in the Khiran inlets.

8. With regard to the areas of the coastal oil deposit and the mainland coastal oil trench, the Panel observed that the evidence available showed that the areas were almost devoid of plant and animal life. The Panel noted that satellite images and other evidence submitted by Kuwait showed that the contamination in the coastal oil deposit and the mainland coastal oil trench areas were a direct result of Iraq's invasion and occupation of Kuwait. The Panel found that this damage constituted environmental damage directly resulting from Iraq's invasion and occupation of Kuwait, and that a programme to remediate it would constitute reasonable measures to clean and restore the environment.

9. Kuwait proposed to excavate visibly contaminated areas of the coastal oil deposit and coastal oil trenches and to treat the excavated material with high temperature thermal desorption. Kuwait also proposed to apply in situ bioremediation to enhance natural degradation processes for the remaining non-visible contamination.

10. The Panel considered that proposed excavation of visibly contaminated material in the areas of the coastal oil deposit and mainland coastal oil trench was reasonable and that landfilling of the excavated material was also a reasonable disposal option. The Panel did not consider that in situ bioremediation of residual contamination and consequential long-term monitoring would be necessary since the proposed remediation programme involved the excavation of all visibly contaminated material. However, the Panel found that it was necessary to backfill the excavated area with clean material and also to clear the area of ordnance.

11. With regard to the weathered oil layers, the Panel noted that some of them were unusually large, indicating that they resulted from an exceptionally large oil spill. The Panel found that the larger weathered oil layers constituted environmental damage that resulted directly from Iraq's invasion and occupation of Kuwait, and that a programme to remediate the damage constituted measures that were reasonably necessary to clean and restore the environment, in accordance with paragraph 35 (b) of Governing Council decision 7.

12. With regard to the residual oil contamination in the Khiran inlets, the Panel found that, although in situ bioremediation of residual contamination in the shoreline of the inlets appeared to be feasible, the available information indicated that the potential benefits of such bioremediation, in terms of reduction of contamination and improvement in ecological function, were uncertain. In the view

of the Panel, wet tilling of those areas would have been adequate to clean and restore the environment.

13. The Panel concluded that, with the modifications mentioned, the remediation measures proposed by Kuwait constituted measures that were reasonably necessary to clean and restore the environment, within the meaning of paragraph 35 (b) of Governing Council decision 7.

14. The Panel adjusted the expenses of the remediation measures proposed by Kuwait to take account of the above-mentioned modifications:

(a) Elimination of in situ bioremediation and long-term monitoring;

(b) Elimination of high temperature thermal desorption treatment of excavated material;

(c) Costs of landfilling of excavated material;

(d) Costs of wet tilling in the Khiran inlets;

(e) Reduction to take account of the portion of the damage in the weathered oil layer areas that may not be attributable to Iraq's invasion and occupation of Kuwait.

15. These adjustments reduced the compensable expenses to $3,990,152.

B. Claims by Saudi Arabia concerning damages to coastal resources and intertidal shoreline habitats

1. Damage to coastal resources (claim No. 5000451)[c]

1. In this case, Saudi Arabia sought compensation in the amount of $4,748,292,230 for expenses of future measures to remediate damage to its coastal environment resulting from Iraq's invasion and occupation of Kuwait. Saudi Arabia stated that its coastal environment was damaged by (a) more than 10 million barrels of oil deliberately released into the Persian Gulf by Iraqi forces; (b) contaminants released from oil wells in Kuwait that were set on fire by Iraqi forces; and (c) other releases of oil into the Persian Gulf as a result of Iraq's invasion and occupation of Kuwait. Saudi Arabia explained that the damage to its shoreline resulted from the toxicological effects of chemical constituents of oil as well as the physical effects resulting from smothering of sediment layers by oil.

2. Iraq stated that "there is no dispute that the oil spill occurred or that it had immediately caused environmental damage to wildlife and the beaches and habitats of the coast of Saudi Arabia". However, Iraq contended that the damage to Saudi Arabia's shoreline could not be attributed solely to the events in 1991. It pointed out that the region "is constantly exposed both to accidental spills and routine ongoing pollution". Iraq also contended that it was not liable for damage caused by oil releases that resulted from the bombing of Iraqi tankers by the Allied Coalition Forces or for damage from oil that was released from oil wells in Kuwait "long after [Iraqi forces] had withdrawn from Kuwait".

[c] S/AC.26/2003/31, paras. 169-189.

3. The Panel noted that Governing Council decision 7 states that "direct loss, damage or injury" includes any loss suffered as a result of military operations by either side during the period from 2 August 1990 to 2 March 1991. Accordingly, the Panel stated that damage caused by oil releases was compensable whether it resulted from military operations by Iraq or the Allied Coalition Forces. In the view of the Panel, evidence available from a variety of sources supported the conclusion that the overwhelming majority of the oil present in the areas which Saudi Arabia proposed to remediate resulted from Iraq's invasion and occupation of Kuwait.

4. The Panel, therefore, found that damage from oil contamination to the shoreline between the Kuwait border and Abu Ali constituted environmental damage directly resulting from Iraq's invasion and occupation of Kuwait.

Measuring and quantifying the damage

5. Saudi Arabia proposed a programme to remediate the environmental damage. The programme sought to remediate 29 areas, totalling approximately 73 km^2, along the coastline between the Kuwait border and Abu Ali, by excavating and removing visibly contaminated material. Following sediment excavation, the programme proposed to treat the residual contamination in remaining sediments with bioremediation techniques and the excavated material using high temperature thermal desorption at a number of facilities to be constructed for that purpose. Treated sediments were supposed to be blended with dredged subtidal sediments and replaced in excavated areas.

6. The Panel found that the programme proposed by Saudi Arabia to remediate the damage would constitute reasonable measures to clean and restore the environment.

Determining the amount of compensation

7. The Panel adjusted the expenses of the proposed remediation programme to take into account, inter alia, the following modifications:

(a) Reduction in the total area and volume of materials to be remediated;

(b) Emphasis on in situ treatment methods;

(c) Elimination of high temperature thermal desorption treatment of excavated material;

(d) Landfilling of excavated material.

8. The recommended award included provision for long-term monitoring of the remediation activities. The Panel considered it appropriate to integrate continuous monitoring into the design and implementation of the remediation programme in order to make the programme flexible and more able to respond to new information.

9. The Panel, therefore, recommended compensation in the amount of $463,319,284 for this claim.

10. The Panel considered the issue of compensation for loss of use of coastal resources with respect to this claim separately in the fifth instalment of F4 claims as part of claim No. 5000463.

2. Intertidal shoreline habitats (claim No. 5000463)[f]

11. In this claim, Saudi Arabia sought compensation in the amount of $5,369,894,855 for severe and persistent damage to a large area of its intertidal shoreline habitats resulting from the oil spills caused by Iraq's invasion and occupation of Kuwait.

Measuring and quantifying the damage

12. Saudi Arabia proposed to undertake several compensatory projects to cover all the losses referred to in the various claim units of claim No. 5000463. Two of those projects are directly related to the losses to intertidal shoreline habitats. The first project, for which Saudi Arabia sought compensation in the amount of $5,074,890,386, was to establish 10 separate marine and coastal preserves, covering a total area of 183.2 km^2. The second project, for which Saudi Arabia sought compensation in the amount of $295,004,469, was to construct 42.1 km^2 of new salt marshes and mangrove areas within the above-mentioned preserves.

13. The Panel found that the primary restoration envisaged by the award in the third F4 instalment would not fully compensate for the loss resulting from the damage. Accordingly, the Panel considered that compensatory restoration was appropriate in this case.

14. However, the Panel noted that there were differences in the severity of oil contamination, losses in ecological services and expected recovery times in different areas. Accordingly, it made modifications to Saudi Arabia's calculations to reflect those differences.

15. In the view of the Panel, two shoreline preserves with a total area of 46.3 km^2, and operated for a 30-year period, would sufficiently compensate for Saudi Arabia's losses in ecological services in its intertidal shorelines. The Panel considered that such preserves, sited in habitats similar to those that had been damaged, would provide ecological services similar in kind to those that were lost. In the view of the Panel, such preserves were feasible, cost-effective and posed a low risk of adverse impacts. The Panel also noted that those preserves would provide benefits to wildlife as well as offer compensation for the damage to subtidal habitats.

Determining the amount of compensation

16. After reviewing the projects proposed by Saudi Arabia, the Panel considered that a number of modifications were necessary. The expenses of the projects were adjusted to take account of, inter alia, the following modifications:

(a) A 30-year duration for the operation and maintenance of the two recommended preserves, instead of 20 years as proposed;

(b) Reduction in the number of facilities and a decrease in the staff required to operate them;

(c) Adjustments to unit costs and contingency estimates;

(d) Additional allowances for items not budgeted, such as fencing and a pier or ramp;

[f] S/AC.26/2005/10, paras. 611-636.

(e) Elimination of the expenses for land acquisition because insufficient information was provided to support those expenses.

17. These modifications and adjustments reduced the expenses of the compensatory project to $46,113,706.

18. The Panel found that this amount constituted appropriate compensation for damage to or depletion of Saudi Arabia's natural resources resulting from Iraq's invasion and occupation of Kuwait, in accordance with paragraph 35 (e) of Governing Council decision 7.